

*E.5 F14 BMP/RHCA PACFISH Buffer Effectiveness Monitoring References and Results (Synthesized by K. Smith)*

*PACFISH RHCAs:* All management activities since 1995 implemented PACFISH buffers in order to eliminate or reduce impacts to riparian areas and streams. With no new large disturbance in RHCAs, there should be no long term negative changes to the measured habitat parameters as a result of post-1995 timber harvest activities. Various field reviews and monitoring activities support the conclusion that the habitat conditions have improved. Much of the recovery is likely a result of less land disturbing activities, better application of BMPs, RHCA retention, and better road design (USDA, 2008; pg. 91). Monitoring results from the PACFISH/INFISH Biological Opinion (PIBO monitoring across the Upper Columbia River Basin) indicate improving trends in pool depth, bank stability, large wood frequency and volume in both reference and managed sites (USDA Forest Service 2012). There were no significant trends for percent fines, and negative trends in the percent of pools were observed in both reference and managed sites. Because the trends were similar at both reference and managed sites, they surmised that the lack of or negative trends in percent fines and pools may not be management related. A summary of PIBO data collected between 2001 and 2013 just within Region 1 of the Forest Service showed desired trends in all parameters except for percent pools (USDA 2016, unpublished report). Percent pools had an overall 2% decrease where increases would have been expected. The overall percent pool tail fines (a measure of fine sediment) decreased by 14% within the region which is the desired trend for sediment. The data suggests that PACFISH RHCAs are highly effective at reducing impacts to riparian areas and streams from management activities. PIBO data was summarized for the Lower Selway in 2016, however there were not enough managed site samples to compare to or determine trends (USDA 2016, unpublished report). Local monitoring of 23 miles of RHCAs and 5.5 miles of temporary road after timber harvest and burning of the units was completed on the Lochsa District in 2014 (Smith 2016, unpublished report). There was no evidence of sediment moving from harvest units into RHCAs or sediment moving from temporary roads into harvest units or RHCAs. The thick vegetation that makes up RHCAs acts as an excellent, virtually impenetrable, filtering source for overland sediment flow. Retaining downed woody debris within the harvest units also provides structures that capture sediment and slow or stop its movement down the slope. A walk-through survey of the RHCAs adjacent to harvested IDL and private lands after the Johnson Bar Fire was conducted (Smith 2016). There was no evidence of sediment entering Elk City or Swiftwater Creeks which was due to the streamside buffer retention and the retention of downed woody material throughout the units (see cumulative effects section below). No-harvest buffers of 100'- 150' adjacent to streams within timber sales have been shown to be adequate in protecting the riparian vegetation necessary to maintain natural stream temperature levels (Anderson and Poage 2014; Ott et al 2005; Lee et al 2004; Sridhar 2004; FEMAT 1993). PACFISH buffers greatly exceed these guides on fish bearing streams and meet the guides on non-fish bearing and intermittent streams.